UNIVERSITY of BRADFORD

Module Descriptor

Module Details	
Module Title	Big Data Systems and Analytics
Module Code	COS7006-B
Academic Year	2020/1
Credits	20
School	Department of Computer Science
Subject Area	Computer Science
FHEQ Level	FHEQ Level 7
Pre-requisites	N/A
Co-requisites	N/A

Contact Hours	
Type	Hours
Online Lecture (Synchronous)	24
Online Tutorials (Synchronous)	6
Laboratories	12
Directed Study	158

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Semester 1

Module Aims

To enable you to gain advanced knowledge and develop skills on big data topics, concerning architectures of big data systems, management of big data projects, and computational approaches for big data analytics. To equip and enhance the understanding and application of intellectual property, and legal and ethical issues within the general context of digital economy and big data.

Outline Syllabus
1. Introduction to a variety of Systems Architectures for big data, study of different architectures and the associated functions. 2. The design of big data systems to enable the effective analytics of big data. 3. Study of a variety of approaches for big data analytics. 4. Study of a variety of cases on big data product design and innovation. 5. Study of a variety of applications of big data analytics in different domains. 6. Introduction to risk assessment and management, intellectual property, legal and ethical issues of big data resources, big data systems development and usage.

Learning Outcomes	
Outcome Number	Description
01	Evaluate the design of system architectures and data analytics approaches for big data projects.
02	a) Design and implement suitable architectures for organising and analysing big data. b) Discuss contemporary issues in big data project management including intellectual property, legal and ethical aspects. c) Apply skills and techniques for problem solving in big data analytics
03	Demonstrate effective communication, team work, self-management and problem solving skills.

Learning, Teaching and Assessment Strategy

A series of lectures (in person presentations delivered either face to face or online, with recording option available) will provide the essential theories and concepts. Laboratory sessions (delivered either face-to-face or online) will provide you with opportunities to implement, practice, and experiment concepts and features of the big data systems? architecture, and test the difference of performance for big data analysis. Tutorials will facilitate identification and discussion of case studies relevant for the academic writing exercises, and will be organised for you to discuss, present and receive feedback on your understanding of the selected topics in small groups or individual settings.

This module satisfies the Learning Outcomes as specified by the Accreditation of Higher Education Programmes: Third Edition (AHEP3) as published by The Engineering Council in-line with the UK Standard for Professional Engineering Competence (UK-SPEC). These outcomes specify six key areas of learning: Science and Mathematics (SM), Engineering Analysis (EA), Design (D), Economic, Legal, Social, Ethical and Environmental Context (EL), Engineering Practice (P) and Additional General Skills (G).

SM7M, SM8M, SM9M, EA6M, EA7M, D9M, EL8M, EL11M, P9m, P10m, P11m, G1.

Further details of these learning outcomes can be found at https://www.engc.org.uk/.

Oral feedback is given during the practical classes as appropriate. Module assessment consists of two coursework components - one involving components of group work and individual contributions, and another one for individual work. The assessment is to test knowledge, understanding and skills for solving relevant practical problems on big data systems and analytics, and their legal, social, ethical, professional and intellectual challenges. The supplementary assessment follows the coursework format to address individually deficiencies encountered at the first attempt.

Mode of Assessment

Type	Method	Description	Length	Weighting
Summative	Coursework	Coursework 1 (Group): Exercises on the design of system architectures. 2000 words or equivalent	N/A	50%
Summative	Coursework	Coursework 2 (Individual): Exercises on data analytics. 2000 words or Equivalent	N/A	50%

Reading List
To access the reading list for this module, please visit https://bradford.rl.talis.com/index.html

Please note:
This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.

---

https://bradford.ac.uk